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distilled, left a blackish brown substance, weighing 49 grains. This substance appeared, by experiments made upon it, to be a variety of the artificial tanning matter, much resembling that obtained from resinous bodies by means of sulphuric acid; but it is remarkable, that when a small quantity of nitric acid was added to an aqueous solution of the substance obtained from camphor, and, after evaporation to dryness, the residuum was dissolved in water, a reddish brown liquid was formed, which acted in a manner exactly similar to the tanning substance obtained from carbonaceous substances by nitric acid.

*On the Discovery of Palladium; with Observations on other Substances found with Platina.* By William Hyde Wollaston, M.D. Sec. R.S. Read July 4, 1805. [*Phil. Trans.* 1805, p. 316.]

In this paper the author relates circumstantially the series of operations by which he was led to the original discovery of palladium; and as he had an opportunity during the solution of a considerable quantity of platina, of making many observations that have not occurred to others, he undertakes, on the present occasion, to mention those which are most worthy of notice.

He remarks, that the gold which is usually found with platina is a constituent part of the ore of platina itself, when the grains are carefully selected.

The metals iridium and osmium, on the contrary, which were extracted by Mr. Tennant from the black powder that remains after solution of the ore of platina, Dr. Wollaston observes, are not only to be found in that powder which is extricated by solution from the interior of the grains of crude platina, but there exist also other grains originally distinct from those of platina, and consisting of these metals only.

These grains, which he considers as the proper ore of iridium mineralized by osmium, are harder than those of platina, are more brittle under the hammer, and when broken appear to be laminated.

The specific gravity of these grains, he says, is very remarkable, being greater than that of the ore of platina, which in his experiments has not exceeded 17.7, while that of the former is as much as 19.5. It would naturally be supposed that such a density might arise from the presence of a large quantity of platina in them; but the author did not succeed in obtaining any platina from these grains.

Among the various substances that may be separated from the ore of platina by washing, he notices also certain minute crystals of the colour of the ruby. Of these he gives a particular description, but does not undertake the analysis, on account of the very small quantity which he could obtain.

The author next proceeds to the solution of platina, from which he first precipitates the greater part of the platina pure, by sal ammoniac, and the remainder in an impure state by iron, a second metallic precipitate, which he observes consists of various metals intermixed.

It was in attempting to analyse this second metallic precipitate, that he first discovered palladium. After separating from it a quantity of lead, and some iron by muriatic acid, and dissolving out some copper by dilute nitrous acid, he was endeavouring to extract the remainder of the copper by a stronger nitrous acid, when he remarked that the colour of the solution, instead of being blue, as before, turned to a dark brown, in consequence of the solution of some other metallic ingredient. The first thought which occurred to him was, that some iron had remained, and had communicated this colour to the solution; but when he considered that this substance had been more slowly acted upon than copper, he relinquished that hypothesis, and, endeavouring to precipitate the metal by a clean plate of copper, he obtained a black powder, which was redissolved in nitrous acid, and formed a red solution.

The solubility of this precipitate in nitrous acid, showed that it did not consist either of gold or platina: the colour of the solution proved equally that it was neither silver nor mercury; and since the precipitation by copper excluded the supposition of all other known metals, he presumed that he was engaged with a new metallic body, but was not fully satisfied of its existence until he had afterwards precipitated it by mercury, with which it formed an amalgam. By treating this amalgam he procured, in a pure state, the metal to which he afterwards gave the name Palladium, from the planet which had been discovered, nearly at the same time, by Dr. Olbers.

There were various considerations arising out of the preceding experiments, which induced him to consider this as a new simple metal; but since it was possible he might be deceived, he undertook a course of experiments for the purpose of obviating all possible objections. He formed alloys with many different metals, dissolved it in various acids, and, having recovered it from the alloys and solutions so formed, he found it to remain unaltered, retaining its original properties, being nearly infusible by itself, but easily fused with sulphur, with arsenic, or with phosphorus; soluble in nitrous acid, and precipitated from thence by green sulphate of iron, by muriate of tin, by prussiates, and by hydro-sulphurets.

When he found all his endeavours to decompose this substance ineffectual, he became more confident of its being a new simple metal, and accordingly published a concise delineation of its character, but avoided directing the attention of chemists to the source from whence it had been obtained, and thereby reserved to himself a more deliberate examination of many phenomena that yet remained unexplained in the analysis of platina, by which he was subsequently led to the discovery of rhodium, another metallic substance, already published in the last volume of our Transactions.